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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/922,059	08/03/2001	Erich James Vorenkamp	10541/562 V200-0618	4056

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EXAMINER	
MAYES, MELVIN C	
ART UNIT	**PAPER NUMBER**
1734	

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/922,059	VORENKAMP ET AL.	
	Examiner	Art Unit	
	Melvin Curtis Mayes	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-20 and 35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-20 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

(1)

Claim 35 is objected to because of the following informalities: line 3 should read "thermoplastic **sheets**". Appropriate correction is required.

Claim Rejections - 35 USC § 102 and 103

(2)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(3)

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

(4)

Claims 1, 3, 4, 10 and 35 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Coffman 4,790,972.

Coffman discloses a method of thermoforming a container comprising: subjecting billets cut from a thermoplastic sheet to heating to 360°F in an oven to melt or partially melt the surfaces of the billets; stacking sets of the billets, and thermoforming the stacked billets at 360°F into a container. As shown in Figure 1 a plurality of the thermoplastic sheet billets are heated in

the oven, a group of the billets are removed from the oven for stacking and for thermoforming while heated (col. 1, line 50 – col. 2, line 27).

Further, by heating thermoplastic billets in an oven to 360°F then thermoforming a group of billets while heating at 360°F, a plurality of thermoplastic sheets are obviously heated in a convection oven or by convection to a first temperature then a removed group obviously heated to a second temperature for forming the group into a container, as claimed.

(5)

Claims 1, 3-7, 9-20 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ekendahl et al. 6,372,176 in view of BE 885162 Abstract and either one of Cobb et al. 4,431,404 or GB 1,160,779, further in view of Mannion et al. 5,961,914.

Ekendahl et al. disclose a method of twin sheet thermoforming a fuel tank comprising: providing first and second thermoplastic sheets to first and second heating stations, respectively, to heat the first and second sheets; feeding the heated first and second sheets to first and second thermoforming stations for thermoforming the sheets into first and second pieces; and pressing the pieces together to fuse them together to form a fuel tank. The heating stations and thermoforming stations are arranged in-line side by side such that first and second sheets are transferred independently between stations. The heating stations can include conventional heaters such as infrared radiators or other heating devices capable of heating thermoplastic material. The thermoforming stations each include a thermoforming tool such as a female vacuum mold. Inserts of various kinds, such as baffles, for a fuel tank can be installed and included in the interior region between the thermoformed sheets by placing the insert within the cavity of one thermoformed piece before transferring the piece to the second thermoformed piece

to fuse the insert within the cavity of the fuel tank (col. 3-8). Ekendahl et al. do not disclose preheating a pluralities of sheets including the first and second sheets in convection ovens before providing the first and second sheets to heaters in the heating stations.

BE 885162 Abstract teaches that in thermoforming, thermoplastic sheet is prepared for thermoforming by a two stage preheating with partial preheating and final preheating with intermediate superficial cooling to generate similar sheet surface and core temperatures relatively quickly and results in a more uniform cross-section temperature profile than a single preheating treatment.

Cobb et al. teach that an improved method for heating plastic sheet material for processing such as forming (thermoforming) which minimizes floor space requirements, which enables optimizing the production rate with respect to the number of sheets being processed and which enables continuous sequential feeding, heating and discharging of a plurality of individual sheets in a manner without affecting the processing taking place with respect to other sheets in the plurality comprises providing an oven having a stack of heated platens for heating sheets between adjacent platens, allowing sequential introducing and removal of sheets to and from the oven (col. 1-4).

GB 1,160,779 teaches that in thermoforming, a plurality of blanks of thermoplastic material can be fed individually in succession in an oven (convection oven) for heating concurrently in the oven and transferring each blank individually from the oven when it has been heated long enough, the use of such oven permitting blanks to be fed to and withdrawn from the oven in continuous succession at intervals (pg. 1, lines 15-57).

Mannion et al. teach that a sheet for thermoforming may be heated by infrared radiant heater, convection hot air ovens, combination of radiant and convection heating or contact heating (col. 3, lines 22-26).

It would have been obvious to one of ordinary skill in the art to have modified the method of Ekendahl et al. for twin sheet thermoforming a fuel tank by providing each of the first and second heating stations with heaters for partial preheating and final preheating, as taught by BE 885162 Abstract, to generate similar sheet surface and core temperatures relatively quickly and achieve a more uniform cross-section temperature profile as compared to a single preheating treatment. Providing each of the first and second heating stations with first and second heaters for partial and final preheating instead of single heater for preheating would have been obvious to one of ordinary skill in the art to achieve a more uniform cross-section temperature profile for thermoforming compared to using a single heater for preheating before thermoforming, as taught by BE 885162 Abstract.

It would have been obvious to one of ordinary skill in the art to have further modified the method of Ekendahl et al. for thermoforming by providing each of the first and second heaters for partial and final preheating as ovens for heating a plurality of sheets concurrently, as taught by Cobb et al., to minimize floor space requirements, enable optimizing the production rate with respect to the number of sheets being processed and enable continuous sequential feeding, heating and discharging of a plurality of individual sheets in a manner without affecting the processing taking place with respect to other sheets in the plurality, or as taught by GB '779 to permit sheets to be fed to and heated concurrently in the oven and withdrawn from the oven in continuous succession at intervals. Providing each of the partial and final preheaters in each of

the first and second heating stations as an oven, such as a convection oven as taught by GB '779, which can heat and plurality of sheet and into which sheets can be continuously sequentially introduced and removed would have been obvious to one of ordinary skill in the art, as taught by Cobb et al., for the advantages of minimizing floor space while optimizing production rate with respect to the number of sheets being processed, or as taught by GB '779 to allow sheets to be heated concurrently while allowing sheets to be fed to and withdrawn from the oven in continuous succession at intervals .

Providing the partial preheaters as convection ovens, such as taught by GB '779, and the final preheaters as infrared heaters, as claimed in Claim 5, would have been obvious to one of ordinary skill in the art, as Mannion et al. teach that a sheet for thermoforming may be heated by infrared radiant heater, convection hot air ovens, combination of radiant and convection heating or contact heating. The use of any of these methods for heating the sheets in the partial and final preheaters would have been obvious to one of ordinary skill in the art as alternatives in the art of thermoforming.

(6)

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claim1 above, and further in view of Coninck et al. 6,328,842.

Coninck et al. teach that welding hollow plastic articles for making fuel tanks requires local melting of the material at the location of the weld lips followed by pressing. The "weld lips" are the surface of the article which are brought into contact to weld the articles (col. 1, lines 43-47, col. 4, lines 10-13).

It would have been obvious to one of ordinary skill in the art to have modified the method of the references as combined by fusing a lip formed with the first and second sheets, as Coninck et al. teach that in making a fuel tank by welding articles, the articles are welded at "lips" to form the fuel tank.

Response to Arguments

(7)

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

(8)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Curtis Mayes whose telephone number is 571-272-1234. The examiner can normally be reached on Mon-Fri 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Fiorilla can be reached on 571-272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melvin Curtis Mayes
Primary Examiner
Art Unit 1734

MCM
February 3, 2005